West Nile Encephalitis

What is West Nile encephalitis?
A. "Encephalitis" means an inflammation of the brain and it can be caused by viral and bacterial infections, including viruses transmitted by mosquitoes. West Nile encephalitis is an infection of the brain caused by West Nile virus, a pathogen which is commonly found in Africa, West Asia, and the Middle East. Prior to 1999, it had never before been documented in the Western Hemisphere. West Nile virus is closely related to the St. Louis encephalitis virus that is routinely found in the United States. Both of these viruses belong to the genus *Flavivirus* and they cause diseases that are similar to one another.

Does West Nile encephalitis now occur in the United States?
A. Yes. From August through September 1999, 56 cases of what were initially thought to be St. Louis encephalitis, occurred in New York City. During this same time period, the unusual death of some birds in the same area prompted investigations that revealed the outbreak actually to be West Nile encephalitis. The deaths of seven people have been blamed on the virus. Human cases of West Nile encephalitis have so far been confined to New York. However, as of October 1999, West Nile virus has been isolated from birds in Connecticut, Maryland, New Jersey; and New York; from mosquitoes in Connecticut, New Jersey, and New York; and from horses in New York.

How do people get West Nile encephalitis?
A. By the bite of a mosquito (primarily *Culex* species) that is infected with West Nile virus.

How is the virus transmitted?
A. Mosquitoes become infected by feeding on birds that carry West Nile virus in their blood. Infected mosquitoes then transmit the virus to humans and animals when taking a bloodmeal. It is NOT transmitted from person-to-person. For example, you cannot get the virus that causes West Nile encephalitis from touching or kissing a person who has the disease, or from a health care worker who has treated someone with the disease.

Can you get West Nile virus directly from birds?
A. There is no evidence that a person can get West Nile virus from handling either live or dead infected birds. However, as a general precaution, always wear gloves when handling dead animals, including dead birds, and use double plastic bags when disposing of carcasses.

Besides mosquitoes, can you get West Nile virus directly from other insects or ticks?
A. Infected mosquitoes are the primary vector for West Nile virus but ticks have been found infected with West Nile virus in Asia and Africa. Their role in the transmission and maintenance of the virus is uncertain.

What are the symptoms of West Nile encephalitis?
A. Most people who are infected have no symptoms, or may experience mild illness including fever headache, and body aches, before fully recovering. In some individuals, particularly the elderly, the disease can be a much more serious illness that affects the central nervous system. Symptoms generally occur 5 to 15 days following the bite of an infected mosquito, and range from a slight fever, headache, rash, swollen glands, and conjunctivitis, to the rapid onset of severe headache, high fever, stiff neck, disorientation, muscle weakness, paralysis, coma, and, occasionally, death. Case fatality rates range from 3% to 15% (higher in the elderly).

What can be done to stop a West Nile encephalitis outbreak?
A. In the Fall of 1999, the risk in the New York City area was greatly reduced due to the effectiveness of mosquito control and public education programs. However, the risk of infection by West Nile virus is not completely over until mosquito activity ceases for the season, i.e., when freezing temperatures are experienced. The transmission cycle for West Nile virus in North America is not fully understood because it is new to this area. The virus may overwinter in birds or in hibernating adult mosquitoes, to again become a problem when the weather warms up the following year. In southern climates where mosquito activity is ongoing, West Nile encephalitis is known to occur year round. Routine testing of mosquitoes and birds for the presence of West Nile virus will greatly enhance early detection capabilities.

Who is at risk of contracting West Nile encephalitis?
A. Anyone can become infected with the virus. However, the elderly are more likely to become ill and develop serious symptoms when infected.

Is there a treatment for West Nile encephalitis?
A. Although there is no specific treatment, medication or cure, the symptoms and complications of the disease can be treated. Most people who get this illness recover from it.

Q. Is there a vaccine against West Nile encephalitis?
A. No.

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How did the West Nile virus get into the United States?

This is currently unknown, but possible explanations are that the virus was introduced into this country by international travel of an infected person, or transport of an infected bird or mosquitoes, from a region where West Nile encephalitis is known to occur.

Is a woman's pregnancy at risk if she gets West Nile encephalitis?

A. There is no documented evidence that a pregnancy is at risk due to infection with West Nile virus.

What can I do to reduce my risk of becoming infected with West Nile virus?

- Stay indoors at dawn, dusk, and early evening. This is when the primary mosquito vector is most active.
- Wear long-sleeved shirt, long pants, and socks whenever you are outdoors; wear loose-fitting clothing to prevent mosquito bites through thin fabric.
- Use insect repellents that have been approved by the Environmental Protection Agency (EPA).

They are safe and effective.

· For your skin, use a product that contains 20-50% **DEET** (N,N-diethyl-meta-toluamide). **DEET** in higher concentrations is no more effective. Do not use **DEET** on infants (children under 3 years old).

· Use **DEET** sparingly on children, and don't apply to their hands, which they often place in their eyes and mouths.

· Apply **DEET** lightly and evenly to exposed skin; do not use underneath clothing. Avoid contact with eyes, lips, and broken or irritated skin.

· To apply to your face, first dispense a small amount of **DEET** onto your hands and then carefully spread a thin layer.

· Do not inhale aerosol formulations.

· Wash **DEET** off when your exposure to mosquitoes ceases.

· For your clothing, use an insect repellent spray to help prevent bites through the fabric. Use a product that contains either **permethrin** or **DEET**. **Permethrin** is available commercially as 0.5% spray formulations.

· **Permethrin** should only be used on clothing; never on skin.

· When using any insect repellent, always FOLLOW LABEL DIRECTIONS.

· For optimum protection, soldiers should utilize the **DOD INSECT REPELLENT SYSTEM**. In addition to proper wear of the battle dress uniform (BDUs), which provides a physical barrier to insects, this system includes the concurrent use of both skin and clothing repellents:

1. Standard military skin repellent: 33% **DEET**, long-acting formulation, 1 application lasts up to 12 hours,

NSN 6840-01-284-3982.

2. Standard military clothing repellents, either: aerosol spray, 0.5% **permethrin**, 1 application lasts through 5-6 washes

NSN 6840-01-278-1336; or impregnation kit, 40% **permethrin**, 1 application lasts the life of the uniform,

NSN 6840-01-345-0237.

- Vitamin B, ultrasonic devices, and 'bug zappers' are NOT effective in preventing mosquito bites.
- Eliminate mosquito-breeding sites by emptying water from bird baths, old tires, and other outdoor containers or debris.
- Make sure that door and window screens do not have holes.

Where can I get more information on mosquito-borne viral encephalitis?

A. Contact the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Aberdeen Proving Ground, Maryland 21010-5403:

·For questions regarding epidemiology, symptomatology, and treatment, call the Directorate of Clinical Preventive Medicine, Disease Injury and Control Policy Program, DSN 687 - 9159; CM (804) 734 - 9159; FAX - 9368.

·For questions regarding mosquito biology, virus transmission cycles, mosquito control, and preventive measures, call the Directorate of Occupational Health Sciences, Entomological Sciences Program, DSN 687 – 9310 / 9259, CM (804) 734 – 9310 / 9259; FAX – 9368.